

CLAIMS

1. A disposable product dispenser for dispensing product into a liquid prior to consumption, the dispenser comprising a quantity of product sufficient for a drink or dose and a holder for the product, characterised in that the holder is arranged to permit a user to release the product in a controlled manner and to mix the product with the liquid.
2. A dispenser as claimed in Claim 1, comprising means to maintain the product in a sterile environment until the product is to be dispensed.
3. A dispenser as claimed in Claim 1 or 2, wherein the holder is arranged to permit the user to dispense the product into the liquid whilst controlling movement of the product in the liquid and permitting the dispensing to be terminated if desired.
4. A dispenser as claimed in Claim 1, 2 or 3, wherein the product is in the form of a solid block mounted on or towards one end of the holder.
5. A dispenser as claimed in Claim 4, wherein the holder is in the form of a spoon with the product located on the lower region of the spoon handle towards the bowl of the spoon.
6. A dispenser as claimed in Claim 5, wherein the product is contained in a water soluble starch.
7. A dispenser as claimed in Claim 1, 2 or 3, wherein the holder comprises a mesh or apertured section defining a cage from which the product is dispensed.
8. A dispenser as claimed in Claim 7, wherein the dispenser is a spoon with the cage mounted on the handle of the spoon towards the bowl of the spoon.
9. A dispenser as claimed in Claim 8, wherein the spoon is formed of a first portion

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and a second portion with the cage integrally formed with one portion.

10. A dispenser as claimed in Claim 9, wherein the first and second portions of the spoon are arranged to be moved relative to each other to release the product.

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11. A dispenser as claimed in Claim 10, wherein movement of the first portion relative to the second portion opens vents to permit liquid to flow through the cage.

10 12. A dispenser as claimed in Claim 10, comprising a sealed compartment in which the product is retained prior to use, the spoon being arranged such that movement of the first portion relative to the second portion causes the product to break through the seal into a region through which liquid may flow.

15 13. A dispenser as claimed in any of Claims 7 to 12, wherein the first portion includes a handle portion of the spoon and the second portion includes a bowl portion of the spoon.

14. A dispenser as claimed in Claim 7, wherein the cage is on the end of the handle of the spoon.

20 15. A dispenser as claimed in any one of Claims 7 to 14, wherein the product is a granular soluble solid.

16. A dispenser as claimed in any one of Claims 7 to 14, in which the product is a liquid.

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17. A dispenser as claimed in Claim 16, wherein the liquid is oil based.

18. A dispenser as claimed in Claim 1 or 2, wherein the holder comprises a straw having product located therein, the straw and product being arranged such that a user 30 sucking liquid through the straw causes the liquid to pass over and dissolve the product.

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19. A dispenser as claimed in Claim 18, wherein the product is solid and formed integrally with the holder.
20. A dispenser as claimed in Claim 18, wherein the holder comprises a chamber located on the straw between a lower and an upper section of the straw, which chamber is arranged to receive product in the form of a capsule.
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21. A dispenser as claimed in Claim 20, wherein the capsule is inserted into the chamber through the lower or upper section of the straw.
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22. A dispenser as claimed in Claim 20 or 21, wherein the chamber comprises flexible walls which can be compressed by a user wherein the capsule is frangible such that the product is retained in a sealed environment until the capsule is ruptured by squeezing the chamber when the capsule is located in the chamber.
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23. A dispenser as claimed in Claim 22, wherein the capsule is designed to rupture in a predetermined manner such that the product is released at a predetermined rate, relative to the flow of liquid through the chamber.
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24. A dispenser as claimed in Claim 1 or 2, wherein the dispenser comprises a straw having an inlet and outlet at opposite ends and one or more intermediate apertures between the ends of the straw, the intermediate apertures being surrounded by a compressible reservoir containing product to be dispensed as liquid is sucked through the straw.
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25. A dispenser as claimed in Claim 24, wherein the reservoir is compressible and arranged such that pressure exerted on the outside of the reservoir will control the rate at which the product is dispensed.
26. A dispenser as claimed in Claim 24 or 25, wherein the intermediate apertures comprise seals arranged to dissolve as liquid is sucked through the straw.
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27. A dispenser as claimed in Claim 24 or 25, wherein the intermediate apertures comprise seals arranged to rupture when sufficient pressure is exerted on the reservoir.

28. A dispenser as claimed in Claim 1 or 2, wherein the holder comprises a dispensing valve in which product is retained, the valve being arranged to receive and seal to a liquid reservoir such that the product is mixed with the liquid as liquid passes from the reservoir through the valve.

29. A dispenser as claimed in Claim 28, wherein the holder further comprises a dispensing nozzle arranged to be immersed in a drink, the dispensing nozzle receiving liquid and product from the valve and being arranged to direct this as jets into the drink.

30. A dispenser as claimed in Claim 28 or 29, wherein the valve is arranged to receive a capsule containing product to be dispensed.

31. A dispenser as claimed in Claim 1 or 2, wherein the holder comprises a compressible bulb containing a product, the bulb having a plurality of outlets through which the product is directed as jets when the bulb is compressed, the jets being covered by a seal which is arranged to be removed prior to use.

32. A dispenser as claimed in Claim 31, wherein a plurality of bulbs are integrally formed as a strip, the bulbs being arranged to be removed individually from the strip.

33. A dispenser as claimed in Claim 31 or 32, wherein the product is an alcoholic liquid.

34. A dispenser as claimed in Claim 1 or 2, further comprising a mixing section having an inlet and an outlet, means defining a first path, extending helically in one sense about an axis, means defining a second path extending helically in the opposite sense about said axis, both said paths being positioned to receive substantially equal amounts of fluid from said

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inlet and to discharge the fluids flowing there along to a common location adjacent said outlet, whereby to effect turbulent mixing.

35. A dispenser as according to Claim 34, wherein said inlet lies vertically above the 5 outlet, and wherein each of said paths slopes to the vertical at an angle in the range of from 30° to 60°.

36. A dispenser according to Claim 34, wherein said inlet lies above said outlet and wherein each of said paths slopes with respect to the horizontal at an angle in the range of 10 from 40° to 50°.

37. A dispenser according to any one of Claims 34 to 36, wherein said mixing section comprises a cylindrical body having a central axially extending member, and wherein said means defining the first and second paths comprises first and second arcuate flanges 15 supporting said central member from the wall of said body.

38. A dispenser according to Claim 37, wherein each of said arcuate flanges subtends at an angle of 180° about said axis and lies on the diametrically opposite side of said axis to the other flange.

20 39. A dispenser according to Claim 37 or 38, wherein the downstream end of each of said arcuate flanges defines an abrupt termination of the path.

40. A dispenser according to any one of Claims 34 to 39, including a dispensing section 25 having an inlet coupled to the outlet of the mixing section and having an elongate conical section which reduces in diameter with distance from the inlet, the conical section having two substantially planar faces on diametrically opposite sides thereof, and apertures in each face to discharge fluid entering the conical section from its inlet.

30 41. A dispenser according to Claim 40, wherein the apertures in each said face are

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arranged substantially equally spaced from one another in a row extending centrally and longitudinally of said faces.

42. A dispenser according to any one of Claims 34 to 41, including a storage section
5 having an outlet which can be coupled to the inlet of the mixing section, and an elongate
hollow bulbous portion extending from its inlet and for storing fluid.

43. A dispenser according to Claim 37, including a sealing membrane extending across
the inlet of the storage section to seal the fluid in the bulbous section.

10 44. A dispenser according to Claim 43, wherein said mixing section includes piercing
means for piercing said membrane to release said fluid from the storage section when the
outlet of said storage section becomes fully engaged with the inlet of said mixing section.

15 45. A dispenser according to Claim 43, as dependent on Claims 4, 9, 10 and 11, wherein
said piercing means is carried by the leading end of said central axially extending member.

46. A dispenser according to any one of Claims 42 to 45, wherein said bulbous portion
is flaccid or flexible and can be squeezed.

20 47. A dispenser according to Claim 44, including locking means for releasably locking
said storage section and said mixer section in partial engagement to prevent the rupture of
said membrane by said piercing means, release of said locking means enabling full
engagement to take place with the consequent rupture of said membrane.

25 48. A dispenser as claimed in any preceding claim, wherein the quantity of product is
sufficient for only one drink or dose.

49. A dispenser substantially as hereinbefore described, with reference to and/or as
30 illustrated in one or more of the accompanying drawings.